FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

February 5 to February 11, 2012 (Week 06)

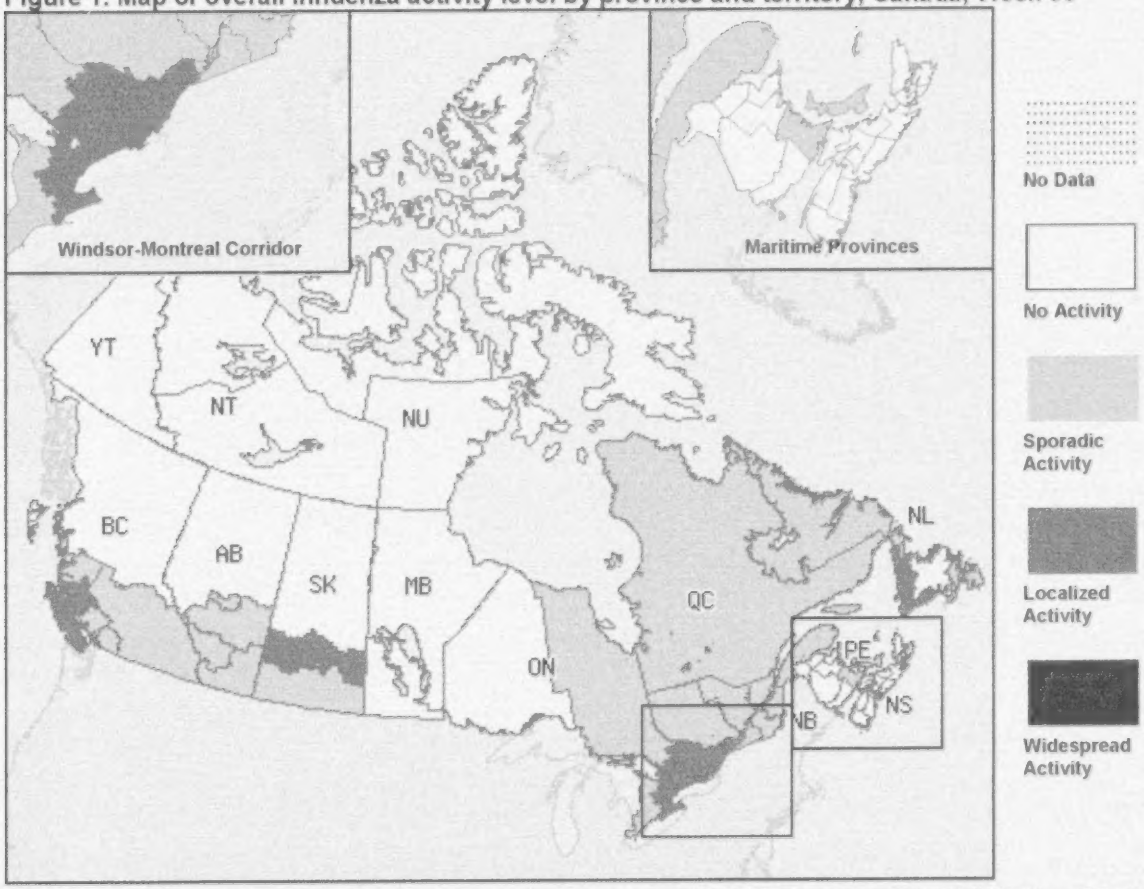
Overall Influenza Summary

- Influenza activity in Canada continues to increase gradually; activity remains low in the Territories and in a few other regions across the country
- Seven regions reported localized influenza activity and 20 regions reported sporadic influenza activity
- Eleven outbreaks of influenza were reported this week (9 in LTCFs, 1 in a school and 1 other)
- In week 06, 263 laboratory detections of influenza were reported (31% A/H3, 12% A(H1N1)pdm09, 16% A unsubtyped and 41% B)
- The percent positive for influenza B detections has been increasing over the past several weeks with some provinces having detected more influenza B viruses than influenza A viruses in week 06 (i.e. Ontario and some Atlantic provinces)
- Twenty-six influenza-associated hospitalizations were reported this week (12 paediatric and 14 adult)
- The national ILI consultation rate declined this week compared to the previous week and remains within expected levels for this time of year.

Influenza Activity (geographic spread) and Outbreaks

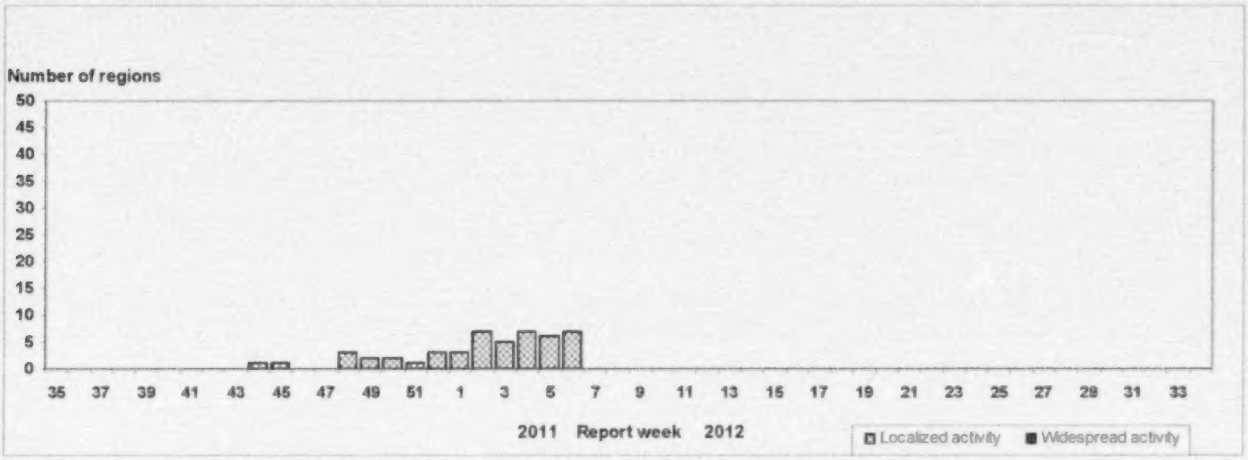
In week 06, seven surveillance regions (within BC, SK, ON, & NL) reported localized activity and 20 regions (within BC, AB, SK, ON, QC, NB, PEI, & NL) reported sporadic influenza activity (see Figure 1). Eleven outbreaks of influenza were reported this week: 9 in long-term care facilities (7 in ON, 1 in BC & 1 in SK), 1 in a school (in ON) and 1 other (in NL) (Figure 3).

Figure 1. Map of overall influenza activity level by province and territory, Canada, Week 06



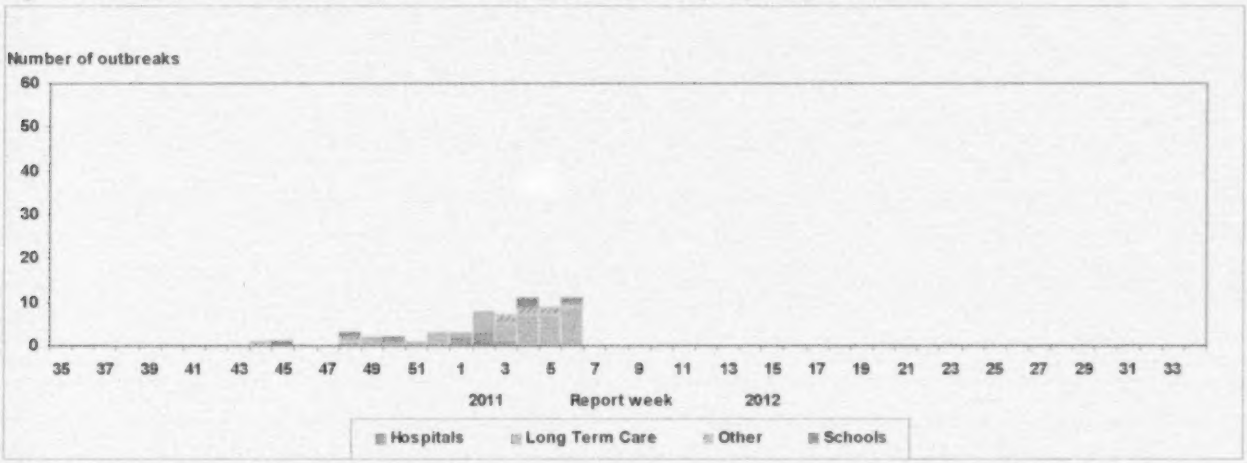
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2011-2012 (N=56)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2011-2012



Influenza and Other Respiratory Virus Detections

The proportion of positive influenza tests continued to increase and was 7.6% (263/3,470) for week 06 (Figure 4 & 5). Of the 263 positive influenza detections this week, 154 (59%) were positive for influenza A and 109 (41%) were positive for influenza B. To date this season, the provinces with the highest proportion of influenza B detections compared to influenza A detections include: ON, QC & the Atlantic provinces.

The proportion of influenza virus detections by type/subtype this season to date is as follows: 72.6% influenza A (65.3% - A(H3); 13.6% - A(H1N1)pdm09; 21.0% - unsubtyped) and 27.4% influenza B (Table 1).

Detailed information on age and type/subtype were received on 1,238 cases to date this season (Table 2). The proportions of cases by age group are as follows: 22.2% were < 5 years; 12.1% were between 5-19 years; 24.2% were between 20-44 years; 15.0% were between 45-64 years of age; 26.3% were >= 65 years; and 0.2% with age unknown.

In week 06, the proportion of tests positive for RSV increased slightly to 19.5% (and has fluctuated between 17-19% since week 01) and remains the most prevalent among the other respiratory viruses being detected. The highest percent positives for RSV this week were reported in ON, QC and the Atlantic Region. The proportion of positive tests for the other respiratory viruses remained similar to the previous week (rhinovirus-5.3%; parainfluenza-2.3%; adenovirus-2.3%; hMPV-4.7%; coronavirus-6.3%) (Figure 5). For more details, see the weekly Respiratory Virus Detections in Canada report.

Table 1. Weekly & Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2011-2012

Reporting provinces	February 5 to February 11, 2012						Cumulative (August 28, 2011 to February 11, 2012)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	16	0	15	1	0	1	270	0	257	13	0	23
AB	42	0	38	1	3	2	239	0	219	10	10	21
SK	32	0	22	5	5	0	146	0	119	8	19	1
MB	0	0	0	0	0	0	9	0	4	0	5	2
ON	25	0	4	19	2	61	171	0	54	94	23	181
QC	38	0	2	5	31	35	173	0	6	13	154	108
NB	0	0	0	0	0	2	2	0	1	0	1	4
NS	0	0	0	0	0	0	0	0	0	0	0	1
PE	0	0	0	0	0	1	0	0	0	0	0	1
NL	1	0	0	0	1	7	2	0	1	0	1	40
Canada	154	0	81	31	42	109	1012	0	661	138	213	382

*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2011-2012*

Age groups	Weekly (Feb. 5 to Feb. 11, 2012)					Cumulative (Aug. 28, 2011 to Feb.11, 2012)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	14	2	8	4	19	181	39	102	40	94
5-19	8	1	6	1	10	104	9	85	10	46
20-44	22	2	7	13	14	242	21	157	64	57
45-64	19	6	3	10	3	158	22	95	41	28
65+	31	3	23	5	10	266	13	216	37	60
Unknown	0	0	0	0	0	2	1	1	0	0
Total	94	14	47	33	56	953	105	656	192	285

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2011-2012

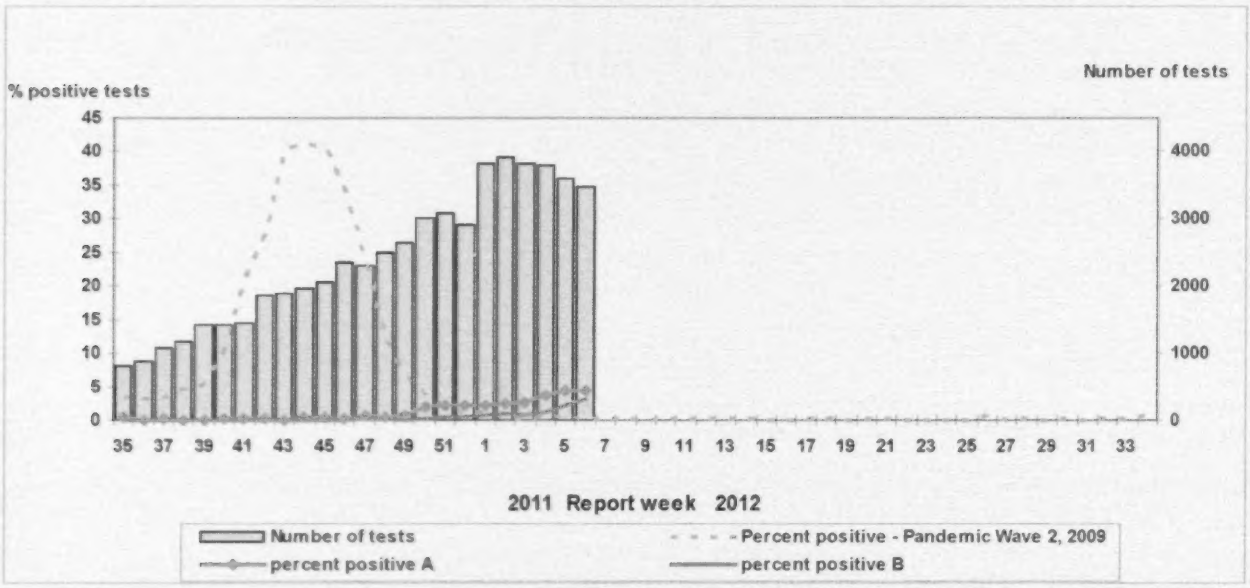
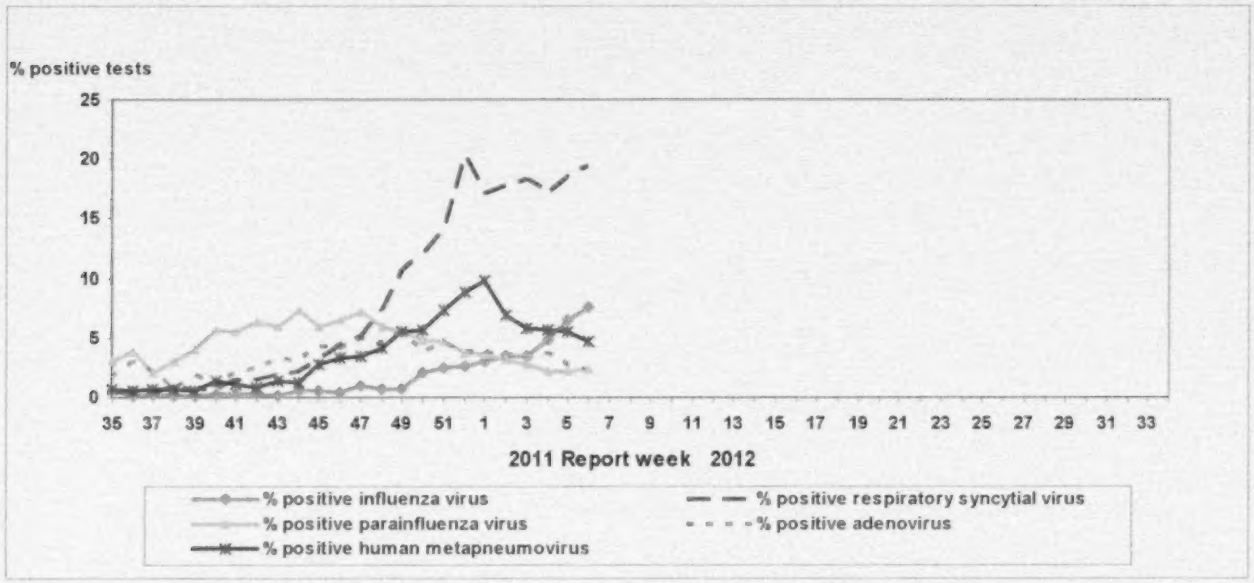


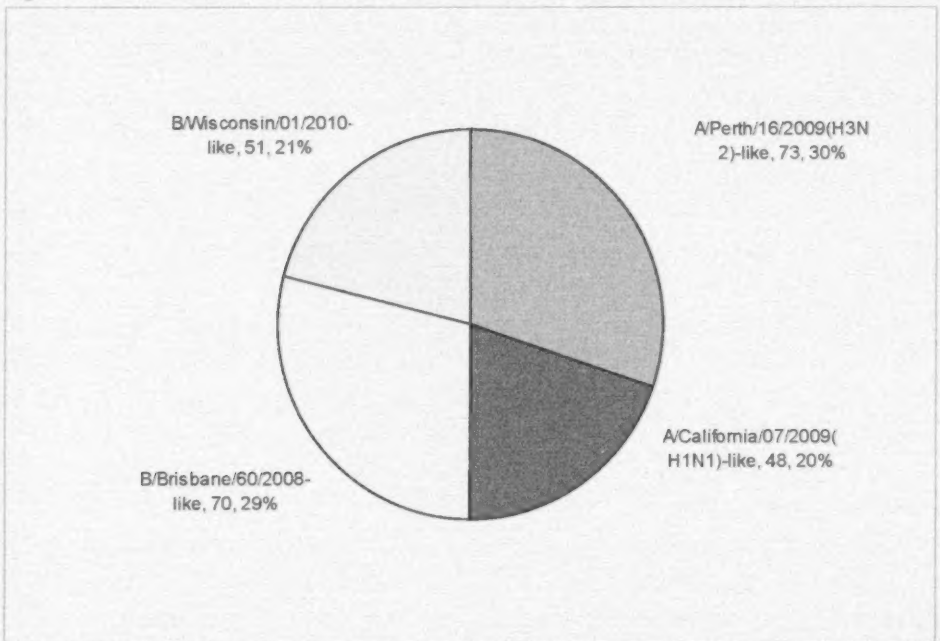
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2011-2012


% positive tests
25
20
15
10
5
0
35 37 39 41 43 45 47 49 51 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33
2011 Report week 2012
% positive influenza virus
% positive parainfluenza virus
% positive human metapneumovirus
% positive respiratory syncytial virus
% positive adenovirus

Influenza Strain Characterizations

Since the start of the season, the National Microbiology Laboratory (NML) has antigenically characterized 242 influenza viruses (73 A/H3N2, 48 A/H1N1 and 121 B). All 73 A/H3N2 viruses (from BC, AB, SK, ON & QC) are antigenically related to A/Perth/16/2009. All 48 A/H1N1 viruses (from BC, ON & QC) are antigenically related to A/California/07/2009. Seventy of the 121 influenza B viruses characterized (from BC, AB, SK, ON, QC & NL) are antigenically related to the vaccine strain B/Brisbane/60/2008 (Victoria lineage). The remaining 51 influenza B viruses (from BC, AB, ON, QC & NB) are antigenically related to the reference virus B/Wisconsin/01/2010-like, which belongs to the Yamagata lineage. (Figure 6)

Figure 6. Influenza strain characterizations, Canada, 2011-2012, N = 242



Note: The recommended components for the 2011-2012 Northern Hemisphere influenza vaccine include: A/Perth/16/2009 (H3N2), A/California/7/2009 (H1N1) and B/Brisbane/60/2008.

Antiviral Resistance

Since the beginning of the season, NML has tested 204 influenza viruses for resistance to oseltamivir (by phenotypic assay and/or sequencing) and 200 influenza viruses for resistance to zanamivir (by phenotypic assay) and it was found that all viruses tested were susceptible to oseltamivir and zanamivir. A total of 165 influenza A viruses (110 H3N2 and 55 H1N1) were tested for amantadine resistance; all but one influenza A(H3N2) virus tested were resistant. (Table 3)

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2011-2012

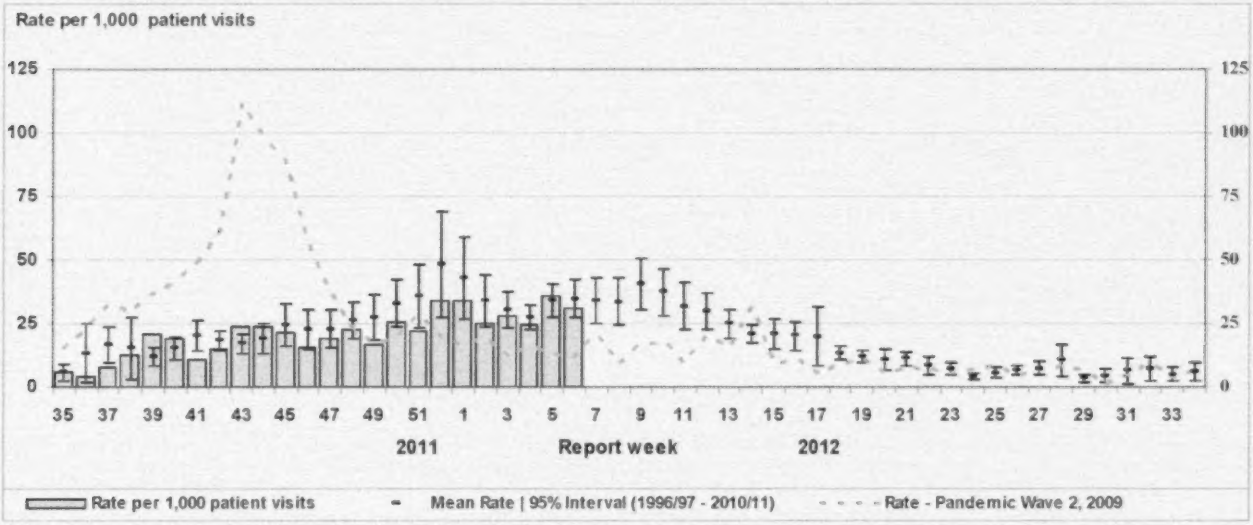
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	68	0	66	0	110	109 (99.1%)
A (H1N1)	43	0	43	0	55	55 (100%)
B	93	0	91	0	NA*	NA*
TOTAL	204	0	200	0	165	164 (99.4%)

* NA – not applicable

Influenza-like Illness (ILI) Consultation Rate

The national ILI consultation rate declined to 31.0 ILI consultations per 1,000 patient visits in week 06 but still remains within the expected levels for this time of year (Figure 7). The highest consultation rates this week were observed in children under 5 (63.0/1,000 visits) and in those 5 to 19 years old (48.9/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2011-2012 compared to 1996/97 through to 2010/11 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Severe Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths

In week 06, 12 new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network. Two hospitalizations were due to influenza A(H3N2) (in AB), 4 due to influenza A (unsubtyped) (in SK & ON) and six were due to influenza B (in BC, AB, ON, QC, & NL).

To date this season, 64 influenza-associated paediatric hospitalizations have been reported through IMPACT (from BC, AB, SK, ON, QC, & NL); 41 (64.1%) were due to influenza A and 23 (35.9%) were due to influenza B. The proportion of cases by age group is as follows: 20.3% among infants <6 months of age; 18.7% among children 6-23 months of age; 39.1% were between 2-4 years; 14.1% were between 5-9 years; and 7.8% were between 10-16 years.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associate paediatric hospitalizations in Canada; therefore, the number of hospitalizations included in this report may differ from those reported by other Provincial and Territorial Health Authorities.

Adult Influenza Hospitalizations and Deaths

In week 06, 14 new laboratory-confirmed influenza-associated adult hospitalizations were reported: 9 in ON and 5 in AB. In addition, one influenza-associated death was reported in ON in week 06; the death was in an adult ≥ 65 years old and had influenza B infection.

To date this season, 106 influenza-associated adult hospitalizations have been reported from five provinces (AB, SK, MB, ON & NL). The proportion of cases by age group is as follows: 23.6% were in those 20-44 years of age; 27.4% were in those 45-64 years of age and 49.1% were in those ≥ 65 years. In addition, 5 adult influenza-associated deaths have been reported to date this season (4 in ON & 1 in MB); all had influenza B infection and all were ≥ 65 years old.

Note: The reason for hospitalization or cause of death does not have to be attributable to influenza in order to be reported. Influenza-associated adult hospitalizations are not reported to PHAC by the following Provinces: BC, QC, & NB. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not reported in ON.

International Influenza Updates

WHO: Influenza activity in the temperate regions of the northern hemisphere remains low overall, but has continued to increase in the United States and Canada. Some countries of western Europe, North Africa, and northern China appear to have reached peak transmission, but activity continues to increase in eastern Europe. In most areas reporting, the levels of both mild and severe disease have been low relative to previous years. The most commonly detected virus type or subtype throughout the northern hemisphere temperate zone has been influenza A(H3N2), with the exception of China and Mexico, where influenza type B and influenza A(H1N1)pdm09 are the predominant type and subtype, respectively. Nearly all influenza A viruses detected were antigenically related to the viruses contained in the current northern hemisphere trivalent vaccine.

Countries in the tropical zone reported low levels of influenza activity with the exception of a few countries in the Americas and parts of southern Asia. In addition to Mexico, some southern states of the United States of America and Colombia in northern South America have also reported a predominance of A(H1N1)pdm09 in recent weeks. Oseltamivir resistance continues to be observed at very low levels compared to previous seasons.

World Health Organization influenza update

PAHO: In week 5, influenza activity in North America increased but remained within the expected range for this time of year, with the predominant viruses being influenza A(H3N2) in Canada and the United states, and influenza A(H1N1)pdm09 in Mexico. In Mexico, from week 1, 2012 through February 10, 2012 the Ministry of Health reported 3,882 cases (90.7%- influenza A(H1N1)pdm09) and 89 deaths (91.0%- influenza A(H1N1)pdm09) associated with influenza.

In Central America and the Caribbean, influenza activity remained low or within the expected range for this time of year, except in Costa Rica where a predominance of adenovirus and influenza A(H3N2) were reported. In South America, influenza activity and acute respiratory illness activity remained low or within the expected range for this period of time; increased RSV activity and co-circulation of influenza A(H3N2) and influenza A(H1N1)pdm09 were reported in Ecuador.

Pan American Health Organization influenza situation report

United States: In week 5, the CDC reported that 10.5% (378/3,586) of influenza tests were positive. Since October 1, 2011, the CDC characterized 280 influenza viruses: 31 A/H1N1, 212 A/H3N2 and 37 B. Twenty-nine (93.5%) of the A/H1N1 viruses were characterized as A/California/7/2009-like and 2 (6.5%) showed reduced titers with antiserum produced against A/California/7/2009. Of the 212 influenza A/H3N2 viruses that were characterized, 208 (98.1%) were A/Perth/16/2009-like and 4 (1.9%) showed reduced titers with antiserum produced against A/Perth/16/2009. Of the 37 influenza B viruses that were characterized, 17 (45.9%) were

B/Brisbane/60/2008-like (B/Victoria lineage) and 20 (54.1%) belonged to the B/Yamagata lineage. The proportion of outpatient visits for ILI was 1.7%, which is below the national baseline. Widespread influenza activity was reported in 1 state (California), 6 states reported regional influenza activity, 8 states reported localized influenza activity, while the rest reported either sporadic or no activity. One influenza-associated pediatric death was reported to CDC during week 5 and was associated with influenza A virus (subtype was not determined).
Centers for Disease Control and Prevention seasonal influenza report

Europe: In week 6, overall influenza activity is higher in some countries in the western part of the region compared to the east. Consultation rates for ILI and acute respiratory infection (ARI) are increasing in 27 out of 42 countries. Approximately 42% of sentinel samples tested positive for influenza, which is a slight decrease from the previous week. Influenza A(H3N2) continues to be the dominant virus circulating in the region with relatively few detections of B viruses being reported. Since week 40, 146 influenza viruses have been characterized antigenically: 2 were A/California/7/2009 (H1N1)-like; 128 were A/Perth/16/2009 (H3N2)-like; 3 were B/Florida/4/2006-like (B/Yamagata/16/88 lineage), 7 were B/Bangladesh/3333/2007-like (B/Yamagata/16/88 lineage) and 6 were B/Brisbane/60/2008-like (B/Victoria/2/87 lineage).
EuroFlu weekly electronic bulletin

Human Avian Influenza Updates

No new cases of human A/H5N1 avian influenza infection have been reported by the WHO since February 8, 2012.
WHO Avian influenza situation updates

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2011-2012 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2011-2012 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. workplace, closed communities.

Influenza Activity Levels Definition for the 2011-2012 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles. Pour en recevoir un exemplaire dans l'autre langue chaque semaine, veuillez communiquer avec Estelle Arseneault, Division de l'immunisation et des infections respiratoires au (613) 998-8862.